

Datasheet

Lodestar – Attitude & Heading Reference System (Subsea)



Description

Lodestar is a solid state IMO approved Attitude and Heading Reference System (AHRS). The unit is comprised of six sensing elements, three Ring Laser Gyros (RLG) and three linear accelerometers, running a Sonardyne developed gyrocompass algorithm.

Incorporating a rugged housing, Lodestar AHRS can be supplied to suit any depth of subsea application. With a battery back up capability supplied as standard, the unit is able to continue to communicate attitude during vehicle brown-outs. Pole mounted applications can provide a more accurate solution to the multibeam or USBL operation.

The Lodestar AHRS utilizes a genuine gyrocompassing algorithm capable of precise heading, roll and pitch estimation in dynamic conditions without the need for external aiding inputs or vessel manoeuvres.

Lodestar also applies a heave algorithm to the vertical motion of the unit resulting in a robust heave measurement solution. Therefore, the Lodestar product is suitable for any application that requires the accurate measurement of heading, heave, roll, and pitch in a highly dynamic environment.

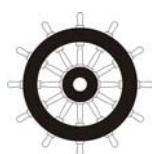
Where high accuracy and a risk free solution is required, the Lodestar AHRS is an ideal replacement for the motion sensor and gyrocompass package, due to its dynamic capability and fast spin up time.

The Sonardyne Lodestar has been designed with reliability as a priority. The unit comprises of high grade, commercially available, IMU components with a very high meantime between failure (MTBF).

Lodestar is compatible with all Sonardyne LBL and USBL products, as well as multiple applications in the offshore and survey marketplace.

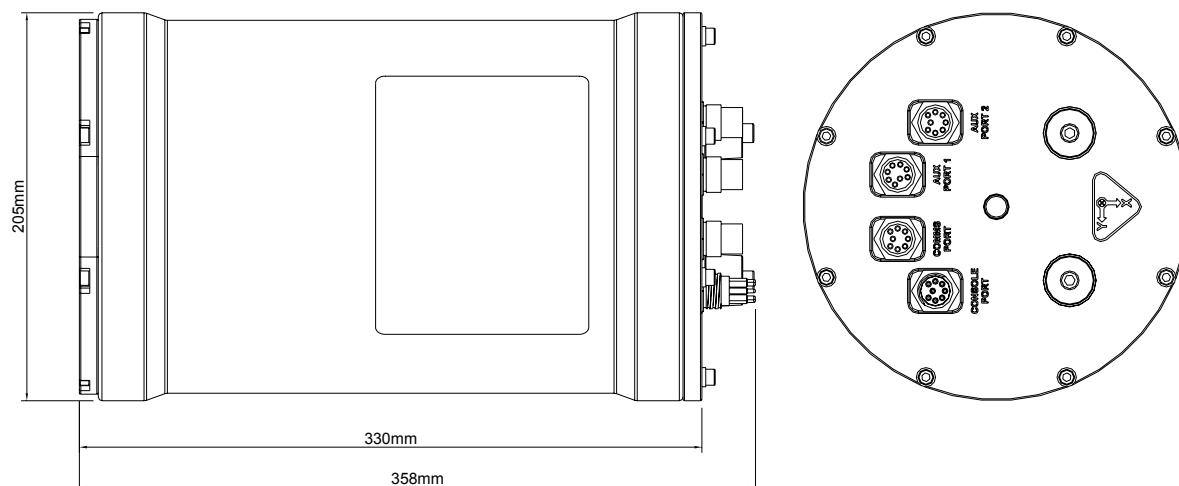
Key Features

- Single box solution for motion sensor and gyrocompass
- 0.1° heading accuracy
- 0.01° roll and pitch accuracy
- <5 minute settling time
- 5cm / 5% heave accuracy
- Fast follow up speed of 500° / sec
- MTBF RLG >100,000 hours
MTBF Lodestar >50,000 hours
- Choice of depth ratings: 1,000 3,000 and 5,000 metres
- Surface version available
- Transport approved Li-Ion battery back up as standard
- Internal 4GB memory allows post processing of a 2 day mission
- Designed and approved to IMO Resolution A424(XI)
- Ethernet interface
- INS ready



Specifications

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Feature		Type 8084-000-11	Type 8084-000-16	Type 8084-000-21
Depth Rating		1,000 metres	3,000 metres	5,000 metres
Physical	Size	205mm Dia. x 358 mm	220mm Dia. x 425mm	205mm Dia. x 409mm
	Weight in Air / Water	13.9kg / 2.9kg	22kg / 8kg	39kg / 28kg
	Mechanical Construction	Anodised Aluminium	Anodised Aluminium	Super Duplex S/Steel

Specifications Common To All Type 8084 Subsea Lodestar Units.

Attitude	Heading	Range	0-360°
		Accuracy	0.10° secant latitude rms
		Settle Time	<5 minutes
	Roll & Pitch	Follow Up Speed	500° / second
		Resolution	0.01°
		Range	±180° (No physical limit)
Heave		Accuracy	0.01°
		Resolution	0.01°
		Range	±99m
		Accuracy (Real Time)	5cm or 5% (Whichever the greater)
		Bandwidth	User selectable
		Resolution	0.01m
Environmental	Operating Temperature		-10°C to +55°C
	Shock Rating Operational		22g, 11ms half sine
	Power Requirement		18 – 50V DC, 15W nominal, 20W peak
	Back Up Battery Type / Life		Li-Ion / 3 hours
	Data Storage		4GB internal memory
Digital Output	Number of Digital Ports/Protocol		4 Digital Ports / RS232 or RS485
	Other Ports		1 × Ethernet
Optional INS	Upgrade Path		Yes
	Navigation Error (Free Inertial)		>1.5NM/hr CEP
	Maximum Acceleration		2.5g